

IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF PENNSYLVANIA

CALDON, INC.,

Civil Action No. 04-1951

Plaintiff,  
v.

JURY TRIAL DEMANDED

ADVANCED MEASUREMENT &  
ANALYSIS GROUP, INC. and  
WESTINGHOUSE ELECTRIC COMPANY  
LLC,

HON. MAURICE B. COHILL, JR.  
FILED ELECTRONICALLY

Defendants.

**PLAINTIFF'S CORRECTED REPLY TO ADVANCED MEASUREMENT  
& ANALYSIS GROUP, INC.'S COUNTERCLAIMS**

**FIRST DEFENSE**

1. The allegations set forth in paragraphs 1, 9, 11, 13, 14, 15, 16, 18, 26, 27, 28, 29,  
30, 33, 35, 36, 37, 38, 39, 40, 41, 42, 43, 45, 46, 47, 48, 49, 50, 51, 52, 53, 57, 58 and 59 of  
AMAG's Counterclaims are denied.

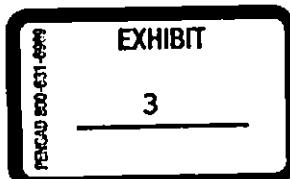
2. The allegations set forth in paragraphs 2, 3, 4, 5, 7, 8, and 56 of AMAG's  
Counterclaims are admitted.

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3. With respect to paragraph 6 of AMAG's Counterclaims, the allegation that  
Caldon is a competitor of AMAG and Westinghouse in the sale of UFM's to owners and  
operators of nuclear power plants throughout the world is admitted. The allegation that Caldon  
sells the LEFM 8300 externally-mounted UFM, the LEFM CHECK and the LEFM  
CHECKPLUS chordal UFM's is also admitted. All other allegations of paragraph 6 are denied.

4. (a) The allegation set forth in subparagraph 10(a) of AMAG's Counterclaims  
that Caldon claimed the redundancy system in the Caldon UFM's "assures that a measurement



"signal" is available "100% of the time" is denied because no such claim was ever made for Caldon's LEFM External UFM or Caldon's LEFM CHECK UFM. The claim has been made for the LEFM CHECKPLUS UFM, and for that meter the claim is true in all material respects, actual data and testing showing availability of a signal 99.99% of the time.

(b) The allegation set forth in subparagraph 10(b) of AMAG's Counterclaims that Caldon claimed that in the Caldon UFM's the redundancy system assures that "the same high degree of performance[s] is always maintained" is denied because no such claim has ever been made with respect to the Caldon LEFM External or the Caldon LEFM CHECK. The claim was made for the Caldon LEFM CHECKPLUS prior to January, 2002, when Caldon discovered that the velocity profiles in feedwater lines are often different from what has been generally assumed, and that they often vary over time, sometimes gradually, and sometimes suddenly. This finding was submitted to the NRC and publicly released in January, 2002 in a Caldon report designated ER-262. While Caldon had allowed for the possibility of small variations in velocity profile when stating their accuracy claims, the discovery that unexpectedly large variations in profiles could occur led Caldon to analyze the effect of such large variations on the accuracy of its flow meters. This analysis indicated that the accuracy of Caldon's UFM's varied with changes in velocity profile in normal operation mode. However, in normal operation mode, the variations in the accuracy of the CHECK and CHECKPLUS due to changes in velocity profile are within the claimed accuracy of these meters and are taken into account in making such claims. During this analysis it was discovered that should the LEFM CHECKPLUS be operating in maintenance mode (which would include a situation when one of two redundant components of the system was inoperable), the margin of error of the LEFM CHECKPLUS meter could increase, under certain circumstances which could not be ruled out, to about 0.5% from a 0.3% or better margin

of error. This finding (along with recommended procedures to be implemented when in maintenance mode) was published in a Caldon document designated CIB-104, which was distributed to the NRC and Caldon's customers, and was published on Caldon's website. In addition, Caldon made presentations at a meeting of the users of Caldon meters in which the analyses were presented as were the recalculations of the meters' margin of error for all modes of meter operation.

(c) The allegation set forth in subparagraph 10(c) of AMAG's Counterclaims that Caldon has claimed that no single point of failure in the Caldon UFM's will degrade the accuracy of the UFM readings is denied because no such claim was ever made for the Caldon LEFM External or the Caldon LEFM CHECK. The claim had been made for the Caldon LEFM CHECKPLUS prior to the discovery that velocity profiles could vary over time, as published in Caldon's ER-262, and was amended to take into account such discovery. As set forth in subparagraph 10(b) above, the discovery and its effects on flowmeter accuracy were published and distributed to all interested parties beginning in January, 2002. The variability of velocity profiles in feedwater lines does not materially affect the accuracy of the Caldon LEFM CHECK or LEFM CHECKPLUS during normal operations but, as a result of such variability, the accuracy of the LEFM CHECKPLUS when operating in maintenance mode (which could include a single point of failure in the LEFM CHECKPLUS) is degraded from a margin of error of 0.3% or better to a margin of error of about 0.5%, which was disclosed to customers in CIB-104. Such disclosure was also made in presentations and technical discussions with customers and in supporting technical documentation.

(d) The allegation set forth in paragraph 10(d) of AMAG's Counterclaims that Caldon claimed the redundancy system in the Caldon UFM's provide "for 100% availability at its

stated accuracy" is denied because Caldron never made such a claim for its LEFM External and LEFM CHECK UFM's. Such a claim was made for the Caldron LEFM CHECKPLUS and is true in all material respects, actual data and testing showing availability of a signal 99.99% of the time at stated accuracy.

(e) The allegation set forth in subparagraph 10(e) of AMAG's Counterclaims that Caldron claimed "[t]here are no undetectable failure modes that could affect" the Caldron UFM's performance is denied because Caldron never made such a claim for its LEFM External UFM's. Such a claim has been made for Caldron's LEFM CHECK and CHECKPLUS, and, based on all information known to Caldron, Caldron believes the claim is true.

5. The allegation set forth in paragraph 12 of AMAG's Counterclaims that Caldron's UFM's have been susceptible to structural failures which have resulted in, inter alia, steam leaks and a number of failures in the performance of the electrical components of the Caldron UFM's at various nuclear power plants, including, but not limited to, (i) Peach Bottom Nuclear Power Station, Unit 1; (ii) Peach Bottom Nuclear Power Station, Unit 2; and (iii) H. B. Robinson Nuclear Power Station is denied because the steam leaks and failure in performance of electrical components referred to were not "structural failures" and because no Caldron UFM was ever installed on Peach Bottom Nuclear Power Station Unit No. 1. By way of further answer, Caldron avers that because of defective welds furnished by a Caldron supplier, steam leaks and certain electrical failures occurred at Peach Bottom Unit No. 2, H. B. Robinson Nuclear Power Station and one other power station - DC Cook Unit No.1 - which were fully disclosed to the NRC and to Caldron's customers in publication designated CIB-107, and in various presentations to customers and potential customers in December, 2002 and May, 2003 and in Caldron document designated PR-414. Analyses performed by Caldron, by the nuclear power stations' owners and

by independent third-party engineers demonstrated that none of the leaks compromised plant safety or integrity and did not interfere with normal plant operations (which continued during the period of the leaks). Despite the leaks, Caldron's UFM's remained operational on all units wherein the leaks occurred. The defective welds were all eventually repaired during normal refueling outages and Caldron sued Ionics, Incorporated and Key Technologies, Inc. (at Civ. No. 04-0632) to recover, inter alia, the cost of the repairs. The litigation was eventually settled to Caldron's satisfaction.

During the period of time the welds were leaking, and with full knowledge of the leaks and their effects, Peach Bottom Unit 2 increased power by 1.4%. After the leaks at Peach Bottom Unit 2 were repaired, power was increased by another 0.3% consistent with the 1.7% MUR Upate that had been approved by the NRC prior to the leaks. Despite the leaks at H B Robinson and D C Cook Unit 1, both nuclear plants achieved the full amount of the uprate approved by the NRC from the outset.

By way of further answer, Caldron avers that because of a defective weld, a pin-hole leak occurred on December 25, 2003 in a seal weld at the Susquehanna Steam and Electric Station Unit 1. Such occurrence was fully disclosed to the NRC and to Caldron's customers in publication designated CIB-112. Susquehanna Unit 1 had increased power by 1.4% in April 2002 consistent with the MUR Upate approved by the NRC. The plant remained in continuous operation without loss of power despite the weld failure, which was temporarily repaired within days and then permanently repaired at the next normal re-fueling outage in March 2004.

6. It is admitted that Caldron made the allegations specifically cited in paragraph 17 of AMAG's Counterclaims, which allegations speak for themselves. The characterization of those allegations set forth in the first sentence of paragraph 17 is denied. By way of further

answer, the averments set forth in paragraph 5 above are hereby incorporated herein by reference.

7. The allegations set forth in paragraph 19 of AMAG's Counterclaims are admitted except for the allegation that Caldron claimed its LEFM 8300 is "guaranteed" accurate to within a 1.0% margin of error, which is denied. Caldron has sold two different LEFM 8300's, one that mounts externally on the feedwater lines and one for which the flow element is welded into the line. Accuracy claims for the External 8300 were plant specific and based on an individual analysis for each plant. These analyses have resulted in accuracy claims of a margin of error generally in the range of 1% to 1.2%. Caldron management does not now recall "guaranteeing" a 1% margin of error for any specific plant and this allegation is therefore denied pending further investigation. With respect to the allegations set forth in paragraph 19 of the AMAG Counterclaim dealing with accuracy claims for the LEFM CHECK and the LEFM CHECKPLUS, it is admitted that accuracy claims of "better than 0.2% under laboratory conditions" and "better than 0.3% when installed" for the LEFM CHECKPLUS UFM and "accurate to within a 0.5% margin of error" for the LEFM CHECK were made but not "guaranteed." Such claims are supported by bounded uncertainty analysis to a 95% confidence level and it is in the context of this demonstrated 95% certainty level that such claims are made and understood in the industry.

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8. The allegation set forth in paragraph 20 of the AMAG Counterclaim that operators use Caldron UFM's to obtain MUR Upates is admitted for the LEFM CHECK and CHECKPLUS UFM's but denied for the LEFM External UFM.

9. The allegations set forth in paragraph 21 of the AMAG Counterclaim that certain nuclear power plants using Caldron UFM's have been unable to achieve the claimed level of

accuracy of "guaranteed" accurate to within a 1.0% margin of error for the LEFM 8300, a 0.5% margin of error for the LEFM CHECK and to within a 0.27% margin of error for the LEFM CHECKPLUS is denied with respect to the LEFM CHECK and LEFM CHECKPLUS UFM's. With respect to the allegation regarding the External 8300, Caldon incorporates herein its answer to paragraph 7 above, and further avers that with respect to the LEFM 8300 External UFM, which has never been used to obtain an MUR Uprate, sensitivity to variations in feedwater velocity profile have resulted in deviations in the level of accuracy, but the claimed level of accuracy from 1% to 1.2% margin of error depending on the plant was exceeded only at the River Bend Power Plant. These deviations resulted in reported overpower events at Palo Verde Units 1-3.

No nuclear power plant, which has relied on a Caldon UFM to obtain an MUR Uprate has ever had an overpower event to Caldon's knowledge.

10. The allegations set forth in paragraph 22 of AMAG's Counterclaims are denied. By way of further answer, the averments set forth in paragraph 9, above, are incorporated herein by reference.

11. The allegations set forth in paragraph 23 of AMAG's Counterclaims are denied. By way of further answer, the averments set forth in paragraph 9, above, are incorporated herein by reference.

12. The allegations set forth in paragraph 24 of AMAG's Counterclaims are denied. At the July, 2004 presentation referred to in paragraph 24 of the AMAG Counterclaim, Caldon's President stated that since the beginning of 2002, Licensee Event Reports "show that 10 nuclear plants have gone over power because of errors in ultrasonic flowmeters. All of these were associated with external flow meters." [Emphasis added]. Referring to chordal meters (LEFM

CHECK and LEFM CHECKPLUS) he said: They "have not experienced a single incident exceeding their design basis, nor have they caused any nuclear plant to go over power."

13. The allegation set forth in paragraph 25 of the AMAG Counterclaim that Cald  
made accuracy guarantees is denied. See response to paragraph 19 of the AMAG Counterclaim  
in paragraph 7 above, which is incorporated by reference herein. Further, the allegation in  
paragraph 25 of the AMAG Counterclaim that Caldon has admitted that its UFMs were not  
capable of achieving its claimed accuracy of within a 0.3% margin of error as a result of the  
failures identified in the Ionics/Key Action is denied as stated. To the contrary, Caldon avers  
that because of defective welds furnished by a Caldon supplier, steam leaks and certain electrical  
failures occurred at Peach Bottom Unit No. 2, H. B. Robinson Nuclear Power Station and one  
other power station - DC Cook Unit No.1 - which were fully disclosed to the NRC and to  
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PR-414. Analyses performed by Caldon, by the nuclear power stations' owners and by  
independent third-party engineers demonstrated that none of the leaks compromised plant safety  
or integrity and did not interfere with normal plant operations (which continued during the period  
of the leaks). Despite the leaks, Caldon's UFMs remained operational on all units wherein the  
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outages and Caldon sued Ionics, Incorporated and Key Technologies, Inc. (at Civ. No. 04-0632)  
to recover, inter alia, the cost of the repairs. The litigation was eventually settled to Caldon's  
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During the period of time the welds were leaking, and with full knowledge of the leaks  
and their effects, Peach Bottom Unit 2 increased power by 1.4%. After the leaks at Peach

Bottom Unit 2 were repaired, power was increased by another 0.3% consistent with the 1.7% MUR Upate that had been approved by the NRC prior to the leaks. Despite the leaks at H B Robinson and D C Cook Unit 1, both nuclear plants achieved the full amount of the uprate approved by the NRC from the outset.

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14. The allegation set forth in paragraph 31 of the AMAG Counterclaim that Caldron has had difficulty competing against the AMAG CROSSFLOW UFM because of Caldron's conceded cost and installation inefficiencies of Caldron UFM's and for other technical and wholly lawful business reasons is denied. On the contrary, Caldron has had difficulty competing with the AMAG CROSSFLOW UFM because, and only because, of the false and misleading claims of accuracy which the Defendants have made.

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15. The allegations set forth in paragraph 32 of the AMAG Counterclaim that Caldron engaged in a campaign of making false and/or misleading statements that disparaged the AMAG CROSSFLOW UFM and/or Westinghouse is denied. It is further denied that the statements alleged to have been made by Caldron in subparagraphs (a) through (h) of paragraph 32 were false, misleading or disparaging statements when considered in the context in which they were made, and along with any assumptions upon which they were based.

Specifically, with respect to subparagraph (a) these statements were made and understood to mean that the Defendants could not demonstrate that such accuracy could be attained by a scientifically sound bounded uncertainty analysis to a 95% confidence level.

With respect to subparagraph (b) such a statement may have been made based on certain assumptions, which were believed to have been realistic, and were themselves based entirely on information made public by Westinghouse and on information from Safety Evaluation Reports published by the NRC.

With respect to subparagraph (c) the statement was made based on the assumption of a conservative bias in the flow readings of the Crossflow UFM as was advertised to the NRC in the Topical Report CENPD-397-P, REV.1 "Improved Flow Measurement Accuracy Using Crossflow Ultrasonic Flow Measurement (UFM) Technology."

The statements set forth in subparagraphs (d) through (h) were true in all material respects when considered in the context in which they were made.

16. With respect to paragraph 55 of AMAG's Counterclaims, Caldron admits the allegation that Westinghouse is Caldron's principal or only competitor in the market for sales of high accuracy UFMs to the owners or operators of nuclear power generating plants and also admits that this description describes the Relevant Product Market. All remaining allegations of paragraph 55 are denied.

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17. Caldron responds to paragraphs 34, 44 and 54 of AMAG's Counterclaims by incorporating the foregoing paragraphs of this Reply.

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#### SECOND DEFENSE

AMAG's Counterclaims fail to state a claim upon which the relief requested can be granted.

#### THIRD DEFENSE

AMAG's Counterclaims may be barred in whole or in part by the applicable limitations period and/or the doctrine of laches.

#### FOURTH DEFENSE

AMAG's Counterclaims may be barred in whole or in part by the doctrines of waiver and/or estoppel.

**FIFTH DEFENSE**

AMAG's Counterclaims may be barred in whole or in part by the doctrine of unclean hands.

**SIXTH DEFENSE**

1. The United States Nuclear Regulatory Commission has determined that Caldon's LEFM CHECK and CHECKPLUS systems meet, in all material respects, the accuracy claims made for these products by Caldon.
2. Such determination constitutes a complete defense to AMAG's Counterclaims and/or is binding on the Court under the doctrine of res judicata/collateral estoppel or is entitled to deference by the Court.

WHEREFORE, Caldon demands judgment in its favor and against AMAG on AMAG's Counterclaims, plus costs and attorney's fees.

Respectfully submitted,

**PICADIO SNEATH MILLER & NORTON, P.C.**

By \_\_\_\_\_

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**CERTIFICATE OF SERVICE**

I hereby certify that a true and correct copy of the foregoing PLAINTIFF'S CORRECTED REPLY TO ADVANCED MEASUREMENT & ANALYSIS GROUP, INC.'S COUNTERCLAIMS was served upon all counsel of record, this \_\_\_\_\_ day of \_\_\_\_\_, 2010, via electronic service and/or First-Class, United States Mail, postage-prepaid, addressed as follows:

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